

Units 1-3 Review #1 Pre AP Chem
Measurements, Density and Physical/ Chemical Change

1-10 provide correct answer *and* rational

1. Which of the following is an example of physical change?
 - a. Mixing baking soda and vinegar together, and this causes bubbles and foam.
 - b. A glass cup falls from the counter and shatters on the ground.
 - c. Lighting a piece of paper on fire and the paper burns up and leaves ashes.
 - d. Baking a birthday cake for your mother.
2. Which of the following is an example of chemical change?
 - a. Filling up a balloon with hot air.
 - b. Taking a glass of water and freezing it by placing it in the freezer.
 - c. A plant collecting sunlight and turning it into food.
 - d. Your dog ripping up your homework.
3. Which change can be easily be reversed?
 - a. Chemical Change
 - b. Physical Change
 - c. Both a physical and chemical change
 - d. Neither a physical or chemical change
4. When a new substance is formed with different properties than the original substance it is called a
 - a. Chemical change
 - b. Physical change
 - c. Freezing
 - d. boiling
5. If the chemical properties of a substance remain unchanged and the appearance or shape of an substance changes it is called a
 - a. Chemical change
 - b. Physical change
 - c. Both a physical and chemical change
 - d. Neither a physical or chemical change
6. Which is an example of a physical change?
 - a. Metal rusting
 - b. Silver tarnishing
 - c. Water boiling
 - d. Paper burning
7. What characteristic best describes what happen during a physical change?
 - a. Composition changes
 - b. Composition stays the same
 - c. Form stays the same
 - d. Mass is lost

8. Which is an example of chemical change?

- a. Water freezes
- b. Wood is cut
- c. Bread is baked
- d. Wire is bent

9. Which is not a clue that could indicate a chemical change?

- a. Change in color
- b. Change in shape
- c. Change in energy
- d. Change in odor

10. What property stays the same during physical and chemical changes?

- a. Density
- b. Shape
- c. Mass
- d. Arrangement of particle

11-18, Show all calculations

11. If there are six iggs per ogg and three oggs per id, how many iggs are in four ids?

What is the volume of a bar of metal with the dimensions 2.0 m x 20 dm x 20 cm?

12. One mg/cm^2 equals _____ kg/m^2

13. The radius of the Scandium atom is 161 pm. How many of these will span a distance of 10.8 in?

14. Perform the indicated operations and express the answer with the proper number of significant digits.

$$28.1 \text{ cm} + 0.53 \text{ cm} + 75.321 \text{ cm} =$$

15. Which number of significant figures is *incorrect*?

- a) 10.0800 (six)
- b) -15.20 (four)
- c) 0.00050 (five)
- d) 8.1441 (five)

16. Which one of the following objects is the most dense?

- a) an object with a volume of 13 dm^3 and a mass of $1.29 \times 10^3 \mu\text{g}$
- b) an object with a volume of 2.5 L and a mass of 12.5 kg
- c) an object with a volume of 0.00212 m^3 and a mass of $4.22 \times 10^4 \text{ mg}$
- d) an object with a volume of 139 mL and a mass of 93 g
- e) an object with a volume of $3.91 \times 10^{-24} \text{ nm}^3$ and a mass of $7.93 \times 10^{-14} \text{ ng}$

17. The density of liquid bromine is 3.12 g/mL. What is the mass of 0.250 L of bromine?

18. The density of air in a mountain resort cabin at 298 K is found to be 0.932 g/L. What is the mass, in kilograms, of the air in a room that measures 10.5 ft x 16.5 ft x 8.25 ft.? (1in = 2.54cm)